AMENDMENTS
In the Claims

1.(**canceled**)
2.(**canceled**)
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12.(**canceled**)
13.(**canceled**)

14.(**currently amended**) A method comprising the steps of:

feeding a contaminated brine solution comprising a monovalent alkali metal salt and having a salinity greater than or equal to about 3% to a biological reactor containing a mixed bacterial culture capable of degrading at least one contaminant under anoxic/anaerobic conditions;

adding an effective amount of a divalent cation precursor to the reactor, where the effective amount of the divalent precursor is sufficient to maintain a divalent to monovalent cation mole ratio at a numeric value greater than or equal to about 0.05 and to form a medium capable of supporting a stable population of the bacterial culture,

degrading the contaminant in the contaminated brine solution for a time and at a temperature sufficient to reduce a concentration of the contaminant at or below a desired concentration while maintaining a suitable nutrient environment in the reactor and while maintaining the divalent to monovalent cation mole ratio greater than or equal to about 0.05.

15.(**original**) The method of claim 14, wherein the reactor is sealed to reduce or eliminate oxygen from the reactor.

16.(**original**) The method of claim 14, further comprising the step of:

sparging or purging the reactor with an oxygen-free gas after feeding the brine solution and

optionally during the degrading step.

17.(**original**) The method of claim 14, wherein the gas is selected from the group of nitrogen, argon, and mixtures and combinations thereof.

18.(**original**) The method of claim 14, wherein the divalent cation precursor is selected from the group consisting of a soluble Mg^{2+} salt, a soluble Ca^{2+} salt, a soluble Sr^{2+}, a soluble Ba^{2+} salt, and mixtures or combinations thereof.

19.(**original**) The method of claim 14, wherein the divalent cation precursor is selected from the group consisting of a soluble Mg^{2+} salt, a soluble Ca^{2+} salt, a soluble Sr^{2+}, and mixtures or combinations thereof.

20.(**original**) The method of claim 14, wherein the divalent cation precursor is selected from the group consisting of a soluble Mg^{2+} salt, a soluble Ca^{2+} salt, and mixtures or combinations thereof.

21.(**original**) The method of claim 14, wherein the divalent cation precursor is a soluble Mg^{2+} salt.

22.(**original**) The method of claim 14, wherein the contaminant is selected from the group consisting of perchlorate, nitrate and mixture or combinations thereof.

23.(**original**) The method of claim 22, wherein the nutrient environment comprises adding an inorganic energy source or an organic energy source in amounts greater than a stoichiometric amount of electrons required to reduce the perchlorate and/or nitrate present in the brine solution for sustained microbial growth during the degrading step.

24.(**original**) The method of claim 23, wherein the inorganic energy source is selected from the group consisting of H_2 gas, a hydrogen delivery chemical, and mixtures or combinations thereof.

25.(**original**) The method of claim 23, wherein the organic energy source is selected from the group

consisting of acetate, ethanol, methanol, lactate, and mixtures or combinations thereof.

26.(**original**) The method of claim 14, wherein the contaminated brine solution is a perchlorate and/or nitrate contaminated ion-exchange regenerate brine.

27.(**currently amended**) A method comprising the steps of:

passing a waste water stream including at least one ion-exchangeable pollutant through an ion-exchange resin able of exchanging the pollutant ion for a non-pollutant ion for a predetermined time or until the resin is no longer able to exchange the pollutant ion with the non-pollutant ion;

stopping the waste water stream from passing through the resin;

passing a brine solution comprising a monovalent alkali metal salt and having a salinity greater than or equal to about 3% through the resin for a time sufficient to exchange all or substantially all of the pollutant ion with the non-pollutant ion to form a pollutant contaminated brine solution;

adding an effective amount of a divalent cation to the pollutant contaminated brine solution to adjust a divalent to monovalent cation mole ratio to a numeric value greater than or equal to 0.05 to form a stabilized, pollutant contaminated brine solution capable of supporting a stable population of a pollutant degrading bacterial culture;

contacting the stabilized, pollutant contaminated brine solution with an effective amount of ~~a~~ the pollutant degrading bacterial culture under anaerobic/anoxic conditions for a time and at a temperature sufficient to degrade a concentration of the pollutant to or below a desired concentration to form a crude treated brine solution, while maintaining the divalent to monovalent cation mole ratio greater than or equal to about 0.05; and

filtering the crude treated brine solution to remove the culture and to form a treated brine solution.

28.(**original**) The method of claim 27, further comprising the step of:

repeating the step of claim 26, where the brine solution comprises the treated brine solution.

29.(**currently amended**) A method comprising the steps of:

feeding a waste water stream including at least one ion-exchangeable pollutant with a first column including a first ion-exchange resin able of exchanging the pollutant ion for a non-pollutant ion for a predetermined time or until the resin is no longer to exchange the pollutant ion with the non-pollutant ion;

switching the waste water stream feeding from the first column to a second column including a second ion-exchange resin capable of exchanging the pollutant ion for a non-pollutant ion for a predetermined time or until the resin is no longer to exchange the pollutant ion with the non-pollutant ion;

passing a brine solution comprising a monovalent alkali metal salt and having a salinity greater than or equal to about 3% through the first column for a time sufficient to exchange all or substantially all of the pollutant ion with the non-pollutant ion to form a pollutant contaminated brine solution and to regenerate the first resin;

adding an effective amount of a divalent cation to the pollutant contaminated brine solution to adjust a divalent to monovalent cation mole ratio to a numeric value greater than or equal to 0.05 to form a stabilized, pollutant contaminated brine solution capable of supporting a stable population of a pollutant degrading bacterial culture;

contacting the stabilized, pollutant contaminated brine solution with an effective amount of ~~a~~ the pollutant degrading bacterial culture under anaerobic/anoxic conditions for a time and at a temperature sufficient to degrade a concentration of the pollutant to or below a desired concentration to form a crude treated brine solution, while maintaining the divalent to monovalent cation mole ratio greater than or equal to about 0.05;

filtering the crude treated brine solution to remove the culture and to form a treated brine solution;

switching the waste water stream feeding from the second column to first column; and

repeating the above-identified steps.

30.(**currently amended**) The method of claim 29, wherein the first and second ion-exchange resins are the same.